

3. FACILITY SWPPP-CA

Facility SWPPP-CAs have been prepared for those facilities that have a potential to discharge storm water to the Big Lost River System as shown on Figure 2-6. The facility SWPPP-CAs are addendums to this Generic Plan and were prepared for the following: CTF, ICPP, and RWMC. Facility SWPPP-CAs include a map and identify existing sediment, erosion, and storm water controls; location of surface water; drainage patterns; existing land use; planned construction projects, and estimated runoff coefficients.

Project SWPPP-CAs must be appended to this Generic Plan or a facility SWPPP-CA, depending on project location. Figure 3-1 shows the relationships between the generic, facility, and project SWPPP-CAs.

Storm Water Pollution Prevention Plans for Construction Activities

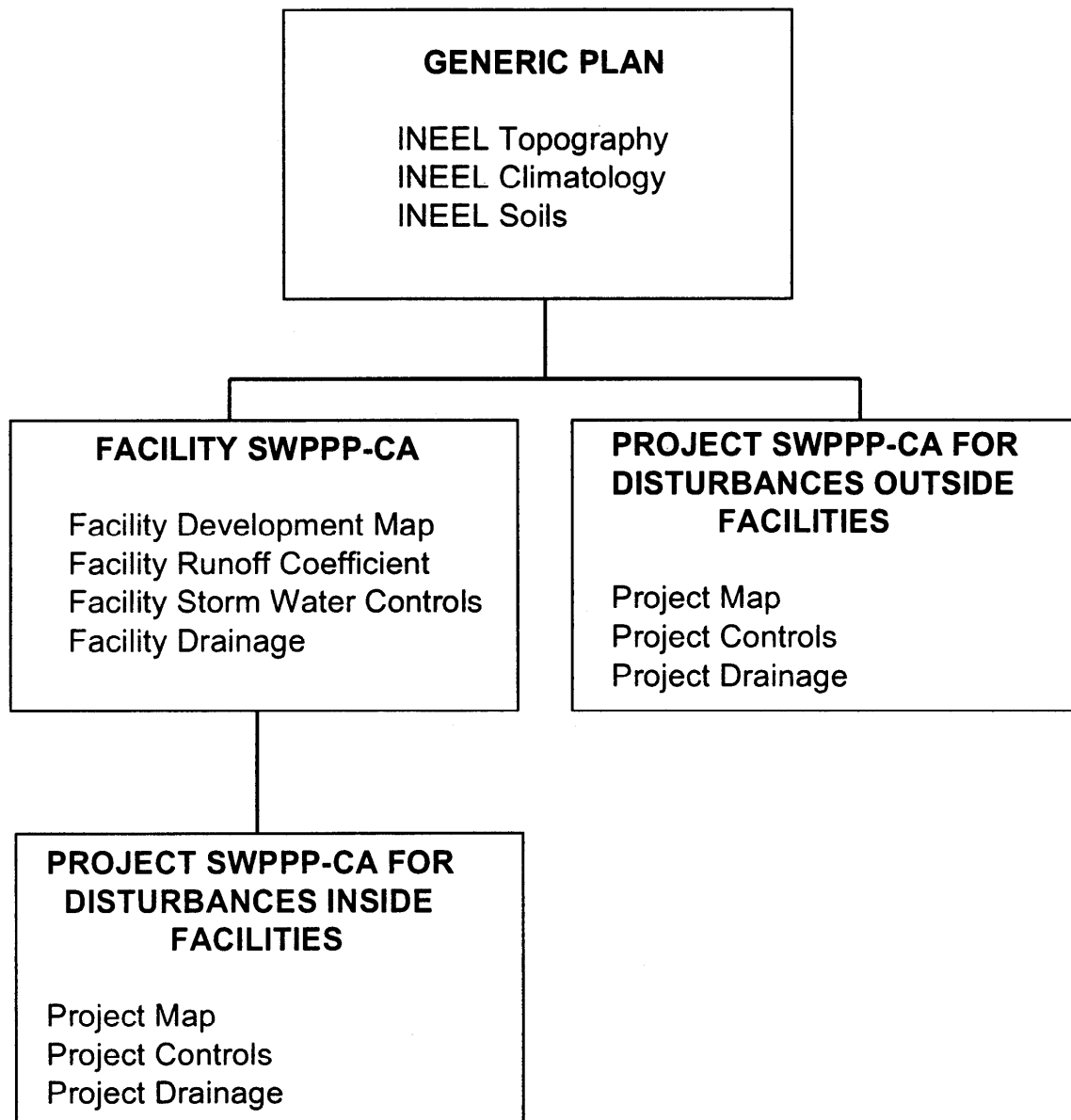


Figure 3-1. Hierarchy and content summary of INEEL storm water pollution prevention plans for construction activities.

4. PROJECT SWPPP-CAs

4.1 Introduction

The following sections provide information on different methods of erosion and sediment control, storm water management, control of potential sources of pollution, construction, maintenance, soil stabilization, inspection, training, and recordkeeping. Appendix A provides detailed information on the selection, design, and maintenance of erosion and sediment controls. Appendix B contains an example SWPPP-CA from the EPA guidance document (EPA 1992). It can be used for guidance on the length and complexity needed in a SWPPP-CA. The project SWPPP-CAs may be developed using the forms presented in Appendix C. The forms identify the elements that must be included in project SWPPP-CAs.

Project SWPPP-CAs should draw from the information presented in this Generic Plan and the facility SWPPP-CA, if appropriate. Project SWPPP-CAs must be designed for the specific project and area where construction will occur. Project SWPPP-CAs need only add project-specific information to be appended to this Generic Plan or to the appropriate facility SWPPP-CA. Project SWPPP-CAs must be prepared in accordance with good engineering practices. Project SWPPP-CAs should be prepared during design to avoid project delays and must be completed at least two days prior to **commencement of construction** (see definition) at the site (EPA 1998).

4.2 Types of Project SWPPP-CAs

Construction activities that involve soil disturbance within the area shown on Figure 2-6 must comply with this Generic Plan. Examples of construction activities are given in the following list.

- Constructing a facility
- Replacing an underground pipe system
- Grading a gravel road
- Remediating contaminated soil
- Demolishing a building
- Drilling a well.

Soil disturbance by LMITCO employees is not typically associated with construction activities since construction is usually performed by subcontractors. Those activities are controlled by the *Storm Water Pollution Prevention Plan for Industrial Activities* (SWPPP-IA)(DOE/ID-10431). Examples of those activities that involve soil disturbance by LMITCO employees and do not require a SWPPP-CA are given in the following list.

- Repair underground leaking pipe
- Geotechnical investigation with minimal disturbance

- Archaeological investigation with minimal disturbance
- Contaminated soil investigation with minimal disturbance
- Operation of landfill
- Operation of borrow source (for example, gravel pit).

Demolition activities and road maintenance are considered construction activities even when performed by LMITCO employees and require a project SWPPP-CA. A decision tree is shown in Figure 4-1 to determine when a project SWPPP-CA is required.

For construction activities outside of the area shown in Figure 2-6 that will disturb areas greater than 10 acres, Water Resources personnel must review projects as a component of the National Environmental Policy Act (NEPA) process. The rationale for the 10-acre area criteria is based on the guidance document (EPA 1992) recommendation that sediment basins should be installed for disturbed areas of 10 acres or more. Water resources personnel will evaluate the need for a study to determine if there is a potential to negatively impact aquatic habitat or waters of the U.S., including wetlands.

4.2.1 Long-Form Projects

Completion of a long-form SWPPP-CA is required for construction activities within the area shown in Figure 2-6, unless a short-form SWPPP-CA is authorized by the INEEL storm water coordinator. Long-form projects require evaluation for compliance with the *Endangered Species Act*, a notice posted near the main entrance of the construction site, minimized area of disturbance, preservation of vegetation where practical, good housekeeping, spill prevention, dust control, waste management, erosion and sediment control installation and maintenance, off-site tracking control, and final stabilization. Inspections are required monthly, after rainstorms of 0.5 in. or greater, during snowmelt, at project closeout, and upon final stabilization. Inspections are recommended by the General Permit before anticipated storm events expected to cause a significant amount of runoff. Required documents are a project SWPPP-CA, construction progress and delay records, inspection reports, spill reports, and notice of final stabilization completion. Long-form project SWPPP-CAs must be certified by the permittees.

4.2.2 Short-Form Projects

Exceptions from using the long-form are determined by the INEEL storm water coordinator on a case-by-case basis. In those cases, a short-form project SWPPP-CA is acceptable. For example, if a disturbance is less than 100 ft² and a flat, vegetated, 500-ft buffer zone is maintained, then a short-form project SWPPP-CA is justified. Short-forms are intended for projects that disturb a very small area and have other favorable factors such as:

- Far from the Big Lost River System
- Few fine-grained soils
- Flat topography
- Effective buffer zone.

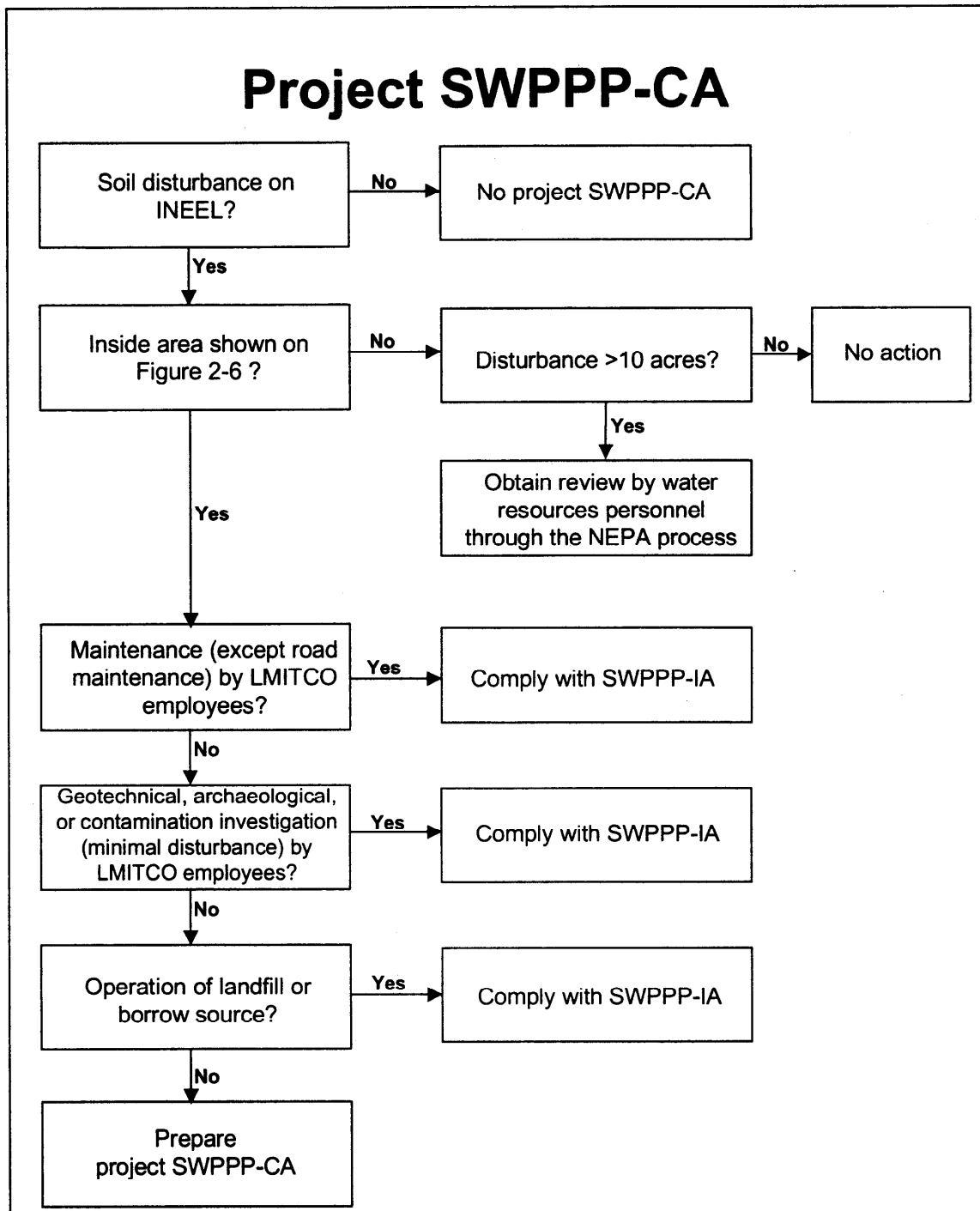


Figure 4-1. Decision tree for specific project storm water pollution prevention plans for construction activities.

Short-form projects require minimized area of disturbance, preservation of vegetation where practical, good housekeeping, spill prevention, dust control, proper waste management, off-site tracking control, and final stabilization. Inspections are required at project closeout and final stabilization. Required documents are a project SWPPP-CA, inspection reports, spill reports, and notice of final stabilization completion.

4.3 Contents of a Project SWPPP-CA

Project SWPPP-CAs shall provide a description of the nature of the construction activity and a site description, which describes potential pollutant sources. Project SWPPP-CAs shall provide the name of the receiving water(s) and the areal extent and description of wetlands at or near the site that will be disturbed or that will receive discharges from disturbed areas of the project (EPA 1998).

4.3.1 Site Map

Project SWPPP-CAs shall provide a general location map and a site map indicating the following: drainage patterns and approximate slopes anticipated after major grading activities; areas of soil disturbance; areas that will not be disturbed; locations of major structural and nonstructural controls identified in the SWPPP; locations where stabilization practices are expected to occur; locations of off-site material, waste, borrow or equipment storage areas; surface waters (including wetlands); and locations where storm water discharges to a surface water (EPA 1998).

A site map must be developed using the best available information. Maps with a 2-ft contour interval are available for each facility area. A site map is developed based upon the nature and extent of the proposed construction activity. The following pollution prevention goals should be considered in the development of the site map:

- Disturb the smallest vegetated area possible.
- Keep the amount of cut and fill to a minimum.
- Limit the impacts to sensitive areas, such as the following:
 - Steep or unstable slopes
 - Surface waters, including playas or spreading areas
 - Areas susceptible to erosion
 - Existing drainage channels.

Revised grades should be shown on the same map as the existing grades. Existing contours should be shown with dashed lines and proposed contours with solid lines. Topographic maps indicating existing and proposed contours for a site are suggested because it is easy to determine the areas that must be disturbed for regrading. At the INEEL, many areas are relatively flat (less than 1% grade) and do not have significant grade changes associated with the construction activity. In that case, proposed contour lines are not necessary, and an explanation may be included in the text.

The site map indicates the entire area that will be disturbed by the construction activity. A “limit of disturbance” line is drawn on the site map. All soil-disturbing activities, including clearing, stripping, excavating, backfilling, stockpiling (topsoil or other fill material), and paving should be within the limit of disturbance. The limit of disturbance should also include roads for construction vehicles, unless these roads are paved (or stabilized) and have measures to reduce tracking of sediments. The limit of disturbance should be a closed boundary line around the entire disturbed area. There can be “islands” of undisturbed areas inside the limit of disturbance, such as an area of natural vegetation or a stand of existing trees. Those islands should be encircled within a limit of disturbance.

The site map indicates drainage patterns of the site after the major grading activities. The drainage basin boundaries and drainage channels or culverts are also indicated. A drainage basin is the area in which water, sediments, and dissolved materials drain to a common outlet (such as a swale or storm drain pipe) from the site. There can be one or more drainage basins on a site. Drainage boundaries are closed lines that start and end at the common outlet. If there is a new or proposed underground storm drain system on the site, it should be indicated on the site map along with the pipe diameter and slope.

The surface waters or channels are indicated on the site map. Where storm water discharges to the Big Lost River System is identified. The site map is complete after the control structures and stabilization areas are indicated on the map.

4.3.2 Assessment

Assessment consists of measuring the size of the land disturbance and estimating the impact the project will have on storm water runoff from the site. Assessment consists of three tasks:

- Measure construction site area
- Measure drainage areas
- Calculate preconstruction and postconstruction runoff coefficients.

The area that will be disturbed by construction activities is measured on the site map. The area should be expressed in acres to the nearest tenth of an acre. Then, for the design of storm water management controls, the area of each drainage basin and the areas of each land use within each drainage basin are measured.

Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff. If the postdevelopment runoff exceeds predevelopment levels, the storm water regulations require a description of the technical basis used to select the practices to control pollution.

Project SWPPP-CAs shall provide estimates of the total area of the site that is expected to be disturbed by excavation, grading, or other activities, including off-site borrow and fill areas. Long-form project SWPPP-CAs shall provide an estimate of the runoff coefficient of the site for both the preconstruction and postconstruction conditions (EPA 1998).

4.3.3 Endangered Species Act

Storm water discharges must be in compliance with the *Endangered Species Act*. The INEEL must certify it meets one of the criteria in the General Permit to obtain coverage for storm water discharges. The INEEL satisfies the criteria by performing comprehensive field and written ecological evaluations,

which include determination of the presence or absence of listed or sensitive species or their habitat, any adverse impacts a construction activity might have on the species or its habitat, and recommendations to remediate any adverse impacts, or requests for a formal or informal consultation with the U.S. Fish and Wildlife Service. The evaluations are included in a file of the project's documents related to the *National Environmental Policy Act* (MCP-469 "NEPA and Environmental Permitting"). As of May 1998, the Environmental Science and Research Foundation performed evaluations for compliance with the Act on a project-by-project basis. If another entity performs the evaluations, that will not constitute failure to comply with this plan.

The bald eagle is the only known resident listed species at the INEEL, and habitat along the Big Lost River may need to be protected. This Generic Plan will not necessarily be revised to update the species and habitat; however, evaluations will be performed based on an accurate list of species and habitat.

Project SWPPP-CAs shall provide information on whether listed endangered or threatened species or critical habitat are found in proximity to the construction activity and whether such species may be affected by the applicant's storm water discharges or storm water discharge-related activities (EPA 1998). Projects must be performed in accordance with the recommendations to prevent or mitigate adverse impacts to listed or sensitive species or their habitat.

4.3.4 National Historic Preservation Act

If EPA modifies the General Permit regarding protection of historic resources, then guidance will be provided here for project SWPPP-CAs. Although the General Permit does not currently provide specific guidance concerning the *National Historic Preservation Act*, construction activities at the INEEL are performed in compliance with the Act.

4.3.5 Erosion and Sediment Controls

Soil erosion and sediment control measures are used to reduce the amount of soil particles that are carried off a land area and deposited in a receiving water. Since the INEEL has low precipitation and relatively flat topography, the potential for soil erosion is due primarily to wind. For short-form projects, erosion and sediment controls primarily consist of minimizing soil disturbance, controlling dust, and stabilizing disturbed areas. For long-form projects, additional soil erosion and sediment controls must be evaluated. A listing and brief discussion of controls and measures is presented in the following subsections. Detailed descriptions of the control measures are included in Appendix A.

4.3.5.1 Minimize Soil Disturbance. Minimizing the amount of disturbed soil, both in areal extent and severity, on the construction site decreases the amount of soil eroding from the site and can decrease the amount of controls that need to be constructed to remove sediment from runoff. To meet that goal, the following practices should be put into use whenever possible:

- Minimize the area disturbed by construction activities.
- Minimize the severity of the disturbance.
- Stage construction activities to minimize the period exposed soil is left in an unstabilized condition.
- Minimize grade changes.

To minimize soil disturbance, the project documents designate clearing limits for the construction activities. If possible, vegetation should not be removed when installing a fence line, power line, temporary road, etc. Although brittle shrubs are likely to be killed, understory forbs and grasses may survive (Anderson and Shumar 1989).

4.3.5.2 Structural Controls. Sediment and erosion controls are designed to retain sediment onsite to the maximum extent practicable. All control measures must be properly selected, installed and maintained in accordance with the manufacturers' specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the control must be replaced or modified for the site-specific situation (EPA 1998).

Offsite runoff is diverted from flowing across disturbed areas, and the amount of storm water that comes in contact with exposed soils is decreased by installing earth dikes, interceptor dikes and swales, or a drainage swale. The velocity of runoff is decreased by designing gently sloped contours (slopes less than 9%). Where steep slopes are necessary, gradient terraces and surface roughening can be used to slow down the runoff velocity and minimize erosion. Most areas at the INEEL have flat slopes (less than 1%) and a very low potential for erosive storm water runoff velocities. Flat slopes control erosion by dissipating its velocity.

Structural practices used in sediment and erosion control divert storm water flows away from exposed areas, convey runoff, prevent sediments from flowing offsite, and also reduce the erosive forces of runoff waters. The structures can be either permanent or temporary controls. Appendix A includes more detailed design information, including when and where to use the control, what to consider, advantages and disadvantages of the method, design criteria, materials required, construction specifications, maintenance requirements, cost, and sources. Placement of structural practices in flood plains should be avoided to the degree attainable. The installation of these devices may be subject to Section 404 of the *Clean Water Act*.

Sediment basins can be as simple as placing an earthen embankment across a low area or drainage swale, or they can be created by excavation. Sediment basins can be designed to maintain a permanent pool or drain completely dry. At the INEEL, sediment basins may be designed to allow most of the runoff water to evaporate or infiltrate. Furthermore, natural drainage basins (depressions) and infiltration areas are common at the INEEL. Natural basins may be adequate sediment basins. Sediment basin requirements are presented in the following three paragraphs.

For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained, or equivalent control measures shall be provided where attainable until final stabilization of the site. [At the INEEL, the 2-year, 24 hour storm is equivalent to 1.1 inches of rain according to the National Oceanic and Atmospheric Administration (1973) and 0.9 inches of rain according to Sagendorf (1996).] Where no such calculation has been performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures shall be provided where attainable until final stabilization of the site. When computing the number of acres draining into a common location, it is not necessary to include flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin.

In determining whether installing a sediment basin is attainable, the permittee may consider factors such as site soils, slope, available area on site, etc. In any event, the permittee must consider safety as a design factor for the sediment basin, and alternative sediment controls shall be used where site limitations would preclude a safe design. For drainage locations that serve 10 or more disturbed acres at one time

and where a temporary sediment basin or equivalent controls is not attainable, smaller sediment basins or sediment traps or both should be used. Where neither the sediment basin nor equivalent controls are attainable due to site limitations, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down-slope boundaries of the construction area and for those side-slope boundaries deemed appropriate as dictated by individual site conditions. The EPA encourages the use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal.

For drainage locations serving less than 10 acres, smaller sediment basins or sediment traps or both should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down-slope boundaries (and for those side-slope boundaries deemed appropriate as dictated by individual site conditions) of the construction area unless a sediment basin providing storage for a calculated volume of runoff from a 2-year, 24-hour storm or 3,600 cubic feet of storage per acre drained is provided. The EPA encourages the use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal (EPA 1998).

Protection must be added to remove the sediment before it flows into drains or inlets. Where there is an existing storm drain or inlet that will receive flow from a disturbed area, a sediment basin, sediment trap, or other type of inlet protection must be provided.

Each project SWPPP-CA shall include a description of appropriate controls for the proposed construction activity and measures that will be implemented at the construction site. It will clearly describe each major activity, appropriate control measures, the timing during the construction process that the measures will be implemented, and the entity responsible for implementation (EPA 1998). It will also describe the control, its purpose, and why it is appropriate. It will also include specific information, such as size, materials, and methods of construction.

4.3.5.3 Dust Control. Wind is capable of causing erosion, particularly in dry climates or during the dry season. Wind erosion can occur wherever the surface soil is loose and dry, vegetation is sparse or absent, and the wind is sufficiently strong. Wind erodes soils and transports the sediments offsite, where they may be washed into the receiving water by the next rainstorm. Therefore, various methods of dust control may need to be employed to prevent dust from being carried away from the construction site. There are many ways to accomplish this, and some are described below:

- Vegetative cover—For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control.
- Mulch—When properly applied, mulch offers a fast, effective means of controlling dust.
- Spray-on adhesive—Asphalt emulsions, latex emulsions, or resin in water can be sprayed onto mineral soil to prevent their blowing away.
- Calcium chloride—Calcium chloride may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage.
- Sprinkling—The site may be sprinkled until the surface is wet. Sprinkling is especially effective for dust control on haul roads and other traffic routes.
- Stone—Used to stabilize construction roads; can also be effective for dust control.

- **Barriers**—A board fence, wind fence, sediment fence, or similar barrier can control air currents and blowing soil. All of these fences prevent erosion by obstructing the wind near the ground and preventing the soil from blowing offsite.

Barriers can be part of long-term dust control strategy in arid and semiarid areas; however, they are not a substitute for permanent stabilization. A wind barrier generally protects soil downward for a distance of 10 times the height of the barrier. Perennial grass and stands of existing trees may also serve as wind barriers.

The above measures for dust control should be used when open dry areas of soil are anticipated on the site. Clearing and grading activities can blow large amounts of dust; therefore, one or several dust control measures should be considered prior to clearing and grading. One should also note that many of the water erosion control measures indirectly prevent wind erosion.

As the distance across bare soil increases, wind erosion becomes more and more severe. In arid and semiarid regions where rainfall is insufficient to establish vegetative cover, mulching may be used to conserve moisture, prevent surface crusting, reduce runoff and erosion, and help establish vegetation. It is a critical treatment on sites with erosive slopes.

The direction of the prevailing winds and careful planning of clearing activities are important considerations. As a standard practice, any exposed area should be stabilized to prevent both wind and water erosion.

Methods of dust control for stockpiles of fine-grained soils are as follows:

- Constructing rectangular pile with long axis parallel to predominate wind directions.
- Forming ridges perpendicular to predominate wind direction.
- Installing a silt fence at the base to serve as a wind break and sediment control.
- Applying temporary mulch.
- Establishing temporary vegetation.

4.3.5.4 Stabilization Practices. The project SWPPP-CA must include a description of temporary and permanent stabilization practices, including a schedule of when the practices will be implemented. Common stabilization practices are described in Appendix A, including when and where to use the practice, what to consider, and the advantages and disadvantages of the practice. Gravel cover is an acceptable permanent soil stabilization practice in areas where weeds are managed, but it is not included in Appendix A.

Stabilization measures shall be initiated as soon as practicable where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity has temporarily or permanently ceased, except as provided below:

- Where initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.

- Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of the site.
- In arid areas (areas with an average annual rainfall of 0–10 inches), and semi-arid areas (areas with an average annual rainfall of 10–20 inches), and areas experiencing droughts where initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable (EPA 1998).

Because the INEEL is defined as an arid area, vegetation measures may be delayed by seasonal arid conditions. However, revegetation shall be initiated as soon as practicable. Fall, late winter, and early spring are the most favorable times for revegetation efforts. A uniform perennial vegetative cover is required. Where initial reseeding or revegetation efforts are unsuccessful, the revegetation efforts shall continue until at least 70% of preconstruction vegetative density is obtained.

Revegetation species adapted to the local environment are recommended. Anderson and Shumar (1989) in *Guidelines for Revegetation of Disturbed Sites at the Idaho National Engineering Laboratory* detail the most effective revegetation methods and species at the INEEL. Revegetation efforts at the INEEL should follow the detailed recommendations in that report. The INEEL revegetation coordinator is available to assist with revegetation efforts.

4.3.5.5 Maintenance. Maintenance includes methods used to maintain vegetation, erosion, and sediment control measures in effective operating condition, and maintain other protective measures identified in the facility or project SWPPP-CA. Maintenance can be specified on a regular interval or can be performed when the inspection indicates maintenance is needed. Identified maintenance needs shall be accomplished before the next anticipated storm event, or as necessary to maintain the continued effectiveness of storm water controls. Accumulated sediments must be removed when design capacity has been reduced by 50% (EPA 1998). Maintenance intervals and methods are listed in Appendix A. Maintenance should be included in the project documents as an ongoing activity throughout the construction process. Controls must be in good operating condition until the protected area has been completely stabilized or the construction project is complete.

If sediments escape the construction site, offsite accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts (for example, fugitive sediment in street could be washed into storm sewers by the next rain or pose a safety hazard) (EPA 1998).

4.3.6 Permanent Storm Water Management Controls

Storm water management controls are required. The project SWPPP-CA must include a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The project SWPPP-CA must include an explanation of the technical basis used to select the practices to control pollution where flows exceed predevelopment levels. The description should include pollutant removal efficiencies of the measures, site-specific factors that affect the application of the measures, the economic achievability of the measure at the site, and any other relevant factors (EPA 1998). If the existing storm water/sediment removal system is capable of handling the increased storm water flows, this is a sufficient evaluation.

Storm water management measures include infiltration of runoff onsite, flow attenuation by vegetation or natural depressions, outfall velocity dissipation devices, storm water retention structures and artificial wetlands, and storm water detention structures. Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide a nonerosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (for example, no significant changes in the hydrological regime of the receiving water). A combination of measures may be needed depending on the characteristics of each site (EPA 1998). DOE Order 6430.1A, Section 0270-2, lists requirements for storm water management systems for DOE facilities. Storm water management controls should be identified on the site map and described in the project SWPPP-CA. Maintenance and operation of storm water controls during construction is regulated by this Generic Plan and its appended plans. After final stabilization, storm water drainage systems are managed in accordance with the SWPPP-IA.

4.3.7 Identification and Control of Other Potential Sources of Pollution

Control measures are required to prevent contact between storm water and potential sources of pollution.

4.3.7.1 Waste Disposal. Proper management and disposal of building materials and other construction site wastes are important parts of pollution prevention. No solid materials shall be discharged to the Big Lost River System. Litter, construction debris, and construction chemicals shall be prevented from becoming a pollutant source (for example, picked up daily) (EPA 1998). Types of wastes that must be managed include, but are not limited to, demolition debris, sand blasting grit, used spill response material, packaging material, concrete from washing ready-mix trucks, and sanitary sewage. Project documents must specify proper waste disposal methods in accordance with the *INEEL Reusable Property, Recyclable Materials, and Waste Acceptance Criteria* (DOE/ID-10381).

4.3.7.2 Minimizing Offsite Vehicle Tracking of Sediments. Vehicle tracking of sediments offsite is a common source of pollution from construction sites. Offsite vehicle tracking of sediments shall be minimized (EPA 1998). The source can be minimized by using stabilized construction entrances and construction access roads. Appendix A includes general design information on these structures.

4.3.7.3 Sanitary/Septic Disposal. The project SWPPP-CA shall be consistent with applicable waste disposal, sanitary sewer, or septic system regulations (EPA 1998). Construction sites must have sanitary facilities for onsite personnel. The most common facilities are portable facilities that store sanitary waste and must be emptied periodically. Other facilities include septic systems or a discharge to the sanitary sewer system. Untreated, raw sewage, or septage should never be discharged or buried onsite.

4.3.7.4 Material Management. Because material storage on a construction site is a major source of risk for storm water runoff pollution, material management can prevent a pollution problem at the source. The SWPPP-CA shall include a description of construction and waste materials expected to be stored onsite with updates as appropriate. The SWPPP-CA shall also include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to storm water, and spill prevention and response. Offsite storage of material, including soil piles, used solely by the permitted project are considered part of the project and shall be addressed in the project SWPPP-CA (EPA 1998).

4.3.7.5 Spill Prevention and Response. Spills are a source of storm water contamination on a construction site. Spills can contaminate soil and water, resulting in potential health risks. The General Permit does not authorize the discharge of hazardous substances or oil resulting from an onsite spill (EPA 1998). The *INEEL Emergency Plan/RCRA Contingency Plan* (Manual 16A) includes spill prevention and

response requirements for each facility. Subcontractors are required to comply with the *Subcontractor Requirements Manual* (LMITCO), which addresses spill prevention and requires the subcontractors to have a spill response program and personnel training plan.

4.3.7.6 Control of Allowable Nonstorm Water Discharges. Except for fire-fighting activity and the allowable nonstorm discharges listed below, nonstorm water discharges are specifically prohibited. The discharges cannot be included in the project SWPPP-CA if they are not directly related to and originate from the construction site or dedicated support activity (EPA 1998). Facility and project SWPPP-CAs must list the following allowable discharges if they are applicable:

- Fire hydrant flushings
- Potable water sources (including well, waterline, and water tank flushings)
- Uncontaminated groundwater or spring water
- Foundation or footing drains where flows are not contaminated with process materials such as solvents
- Exterior building wash down without detergent
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
- Air conditioning condensate
- Waters without detergents used to wash vehicles to minimize offsite sediment tracking
- Waters used to control dust or compact soil that do not produce runoff.

For nonstorm water discharges not listed above, some options for handling the discharge include eliminating the source of the discharge or directly discharging to the sanitary sewer or shallow injection well. Discharges to the sanitary sewer system or shallow injection well must be approved in advance by the operator of the system.

The project SWPPP-CA shall identify and ensure the implementation of appropriate pollution prevention measures for the nonstorm water components of the discharge (EPA 1998). Practices and systems to prevent pollution from allowable, nonstorm water discharges include the following:

- All down-slope site sedimentation and erosion controls should be in place prior to the discharge.
- Discharges with sediment loads should be discharged so that sediment pollution is minimized. Such discharges include dewatering discharges and discharges from sediment traps and basins.
- Discharges with sediment should be directed to pass through a sediment-filtering device. Sediment-filtering devices include sediment traps and basins, silt fences, vegetated filter strips, sump pits, or sediment tanks (EPA 1992).

4.3.7.7 Mobile Asphalt Plants and Mobile Concrete Plants. Project SWPPP-CAs shall provide the location and description of any discharge associated with industrial activity, including storm water discharges from asphalt plants and concrete plants that are dedicated to the construction project. The project SWPPP-CA shall describe control measures that will be implemented to minimize pollutant discharges (EPA 1998).

4.3.8 Construction and Implementation

4.3.8.1 Post SWPPP-CA Notice. The construction manager must verify that the subcontractor posts a notice near the main entrance of the construction site with the following information:

- The NPDES general permit number for the project or a copy of the Notice of Intent if a permit number has not yet been assigned
- The name and telephone number of the construction manager
- A brief description of the project
- The location of the SWPPP if the site is inactive or does not have an onsite location to store the plan.

If posting this information near a main entrance is not feasible due to safety concerns, the notice shall be posted in a building nearby. If the construction project is a linear construction project (for example, pipeline, highway), the notice must be placed in an accessible location near where construction is actively underway and moved as necessary (EPA 1998).

4.3.8.2 Sequence of Controls and Construction. Long-form project SWPPP-CAs shall provide a description of the intended sequence of major activities that will disturb soils for major portions of the site [e.g., grubbing, excavation, grading, utilities and infrastructure installation]. The project SWPPP-CA must clearly describe appropriate control measures for each major activity and the timing for implementing the control measures during the construction process (EPA 1998). Controls should be constructed or applied in accordance with good engineering practices and must be coordinated with the construction activity. When determining the sequence of construction activities, the following principals must be considered:

- Install down-slope and side-slope perimeter controls before land-disturbing activity occurs.
- Minimize the area of disturbance, and do not disturb an area until it is necessary for construction to proceed.
- Cover or stabilize as soon as possible.
- Time activities to limit impact from seasonal climate changes or weather events.
- Delay construction of infiltration measures until the end of the construction project when upstream drainage areas have been stabilized.
- Remove temporary perimeter controls after all upstream areas are stabilized.

4.3.8.3 Construction Records. For long-form project SWPPP-CAs, the project manager is required to keep records of the construction progress and delay. The records are used to document that soil stabilization is performed within the required time frame. The records are transmitted to the INEEL storm water coordinator at project closeout and included in the project SWPPP-CA. The records include dates of the following activities:

- Major grading activities in a particular area
- Beginning or cessation of construction activities in an area, temporarily or permanently
- Initiation of stabilization measures in a particular area (EPA 1998).

4.3.8.4 Changing the SWPPP-CA. When changes in design, construction, operation, or maintenance occur that have a significant effect on the potential for discharging pollutants in storm water at a site, the appropriate SWPPP-CA must be modified (EPA 1998). Examples of changes include major changes in construction scope or design specifications or ineffective erosion and sediment controls. A change in the construction schedule requires a modification to the project SWPPP-CA only if controls need to be modified.

The SWPPP-CA must be modified whenever inspections or investigations indicate it is ineffective in eliminating or significantly minimizing pollutants, or is otherwise not achieving the general objectives of controlling pollutants in storm water discharges from construction activity (EPA 1998).

Also, the project SWPPP-CA must be modified within 14 calendar days of a discharge of a hazardous substance or oil in an amount equal to or greater than a reportable quantity to the Big Lost River System. The modification must provide the date, circumstances, and a description of the discharge. If appropriate, the project SWPPP-CA must be modified to identify measures to prevent the recurrence of such releases and to respond to such releases (EPA 1998).

Additionally, if the EPA finds that the SWPPP-CA does not meet one or more of the minimum requirements, the permittees will be notified of required changes. The permittees then have seven days to make any needed changes (unless another time period is specified). The permittees shall then certify that the requested changes have been made. The EPA may take appropriate enforcement action for the period the permittee was operating under a SWPPP-CA that did not meet the minimum requirements (EPA 1998).

4.3.8.5 Releases of Reportable Quantities. Requirements for spill reporting are identified in LMITCO Manual 8—*Environmental Management* (MCP-439). All chemical releases must be reported to electronic pager 6400, regardless of the quantity of the release. The Spill Notification Team (pager 6400) determines if a reportable quantity is involved and assists facility personnel in making required notifications. When spills or discharges to the Big Lost River System contain a hazardous substance or oil in an amount equal to or in excess of a reporting quantity during a 24-hour period, the following actions must be taken: notify the National Response Center as soon as there is knowledge of the discharge, and modify the project SWPPP-CA within 14 days of knowledge of the release (EPA 1998).

4.3.9 Inspection

After the specific storm water pollution protection measures are put into operation, they must be inspected. Inspection requirements are incorporated into the project inspection plan. Disturbed areas,

storage areas, structural control measures, and locations where vehicles enter or exit the site are inspected for evidence of or the potential for pollutants entering the drainage system.

4.3.9.1 Conducting Inspections. For long-form projects, inspections of construction activities are required at least monthly, within 24 hours of every rainfall of 0.5 in. or greater, at project close-out, and at final stabilization (EPA 1998). Inspections are recommended by the General Permit prior to anticipated storm events expected to cause a significant amount of runoff. For short-form projects, inspections are required at project close-out and final stabilization. Additionally, inspections are required after any significant snowmelt, as determined by the INEEL storm water coordinator. However, inspections may be more frequent depending on the complexity of the construction project, its proximity to the Big Lost River System, and the phase of the construction project.

Inspections are performed by qualified personnel with oversight by the INEEL storm water coordinator. The minimum documentation requirements are presented below:

- Summary of the scope of the inspection
- Name and qualifications of inspector and date of inspection
- Major observations relating to the implementation of the SWPPP-CA
- Identification of any incidents of noncompliance
- Actions taken to correct problems identified (EPA 1998).

The inspector checks that larger areas are not unnecessarily disturbed. The inspector assesses any storm water or erosion and sediment control systems as documented by the project SWPPP-CA. The inspector ensures all required measures are in place and working effectively. When inspecting pollution prevention systems, an inspector primarily looks for (1) whether the measure was installed/performed correctly, (2) damage to the measure since it was installed/performed, and (3) need for corrective actions, including additional control measures.

Where discharge locations are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent practicable. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking (EPA 1998).

Based on the results of the inspection, the project SWPPP-CA must be revised, as appropriate, to include additional or modified measures to correct problems identified. Revisions must be completed within seven calendar days following the inspection. Implementation must be completed before the next anticipated storm event. If implementation before the next anticipated storm event is impracticable, implementation must be as soon as practicable (EPA 1998). The inspector must report control measure problems to the INEEL storm water coordinator and project manager within one working day. If during the normal day-to-day routine inspections, the inspector identifies problems with the control measures, appropriate documentation is required.

4.3.9.2 Recordkeeping. Recordkeeping is necessary to document any inspections of pollution prevention systems and to ensure regulatory requirements are met. The inspection forms are provided in

Appendix C. Upon completion of an inspection, the inspectors submit original documentation to the INEEL storm water coordinator.

4.3.9.3 Inspector Training. Inspectors are required to participate in training provided by the INEEL storm water coordinator. Training for inspectors of storm water pollution prevention measures covers the following:

- When to perform inspections
- What to observe during inspections
- How to document inspections
- Who to notify following inspections
- The construction and maintenance requirements for control measures.

4.3.10 Final Stabilization

A site is considered stabilized when the conditions have been met as specified in the General Permit. According to the General Permit, final stabilization means that all soil-disturbing activities at the site have been completed, and a uniform (for example, evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed. In such parts of the country, background native vegetation will cover less than 100% of the ground (for example, arid areas, beaches). Establishing at least 70% of the natural cover of the native vegetation meets the vegetative cover criteria for final stabilization (for example, if the native vegetation covers 50% of the ground, 70% of 50% would require 35% total cover for final stabilization; on a beach with no natural vegetation, no stabilization is required) (EPA 1998).

The notice of final stabilization completion for each project is prepared by the INEEL storm water coordinator. The Notice of Final Stabilization Completion form is presented in Appendix C.

The termination of the project SWPPP-CA need not correspond to closeout of the construction project. Continued maintenance may be required until final stabilization is achieved.